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Trends and implications of ENT cases in emergency medicine: insights from a tertiary hospital study

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ABSTRACT

Aims: This study aimed to investigate the epidemiological data of patients presenting to the emergency department of a tertiary care hospital with complaints of ear, nose, and throat diseases.

Methods: This retrospective study included patients who presented to the emergency department with complaints of ear, nose, and throat diseases between 01.04.2015 and 01.10.2015. Age, sex, presence of a diagnosed ear, nose, and throat disease, mode of presentation (referral/primary presentation), diagnosis in the emergency department, consultation status, forensic case status, examination status, and discharge status were analyzed. Descriptive statistics (frequency and percentage distribution) were used for statistical analysis. The results are presented as mean ± SD or frequency (percentage).

Results: This study included 2425 patients. 51.5% of the patients were female. The mean age was 35.27±15.6 years (0-88). The highest number of patient admissions was in the 21-30 age range (38.4%). 98.1% of the patients presented to the emergency department as outpatients. It was observed that 2.4% of the applicants had a known previous ear, nose and throat disease. Computed tomography (CT) was the most frequently requested test. The most common diagnoses were acute tonsillopharyngitis and vertigo (60.1%) and vertigo (25.1%, respectively). 3.5% of the patients were evaluated as forensic cases. 4.5% of the patients were consulted to the ear, nose and throat clinic and 3.6% to the plastic and reconstructive surgery clinic. The discharge rate was 97.5%.

Conclusion: The number of outpatient admissions to the emergency department (98.1%) was quite high; 95.5% of the patients did not consult the ear, nose, and throat clinic, and 97% were discharged with an outpatient prescription.

Keywords: Emergency department, otolaryngology, epidemiology

INTRODUCTION

Ear, nose, and throat (ENT) emergencies encompass a range of conditions from mild to severe, necessitating prompt care in secondary or tertiary healthcare facilities. The most common reasons for presentation include ear pain, tinnitus, sudden hearing loss, ear infections, nasopharyngeal infections, vertigo, and maxillofacial traumas. Trauma-related cases, particularly those involving the ear, nose throat, head, and neck, are increasingly prevalent in emergency departments, a trend likely influenced by the rise in road traffic acccidents and natural disasters.[1] It has been reported that foreign bodies seen in the external auditory canal, nasal cavity and airway are among the emergencies of the otorhinolaryngology clinic with a rate of 30%.[2]

It has been observed that approximately 10% of the patients consulted to the ENT clinic from the emergency department are really conditions requiring urgent intervention and the majority of them are diseases that can be resolved with simple intervention.[3] In a study conducted in our country, it was found that there were 1 million 64 thousand 610 applications to the emergency department in a year, pathologies related to the ENT clinic were detected in 27795 (20.75%) of these applications, but more than 95% were treated by emergency physicians.[4] As stated in the studies, it is thought that the vast majority of especially outpatient applications to emergency departments do not need urgent treatment in terms of ENT clinic. Owing to the type of task, the crowding of non-urgent patients in the emergency department prevents patients in need of urgent treatment from receiving the attention they deserve. In many emergency departments, the subjectivity of the concept of emergency is detrimental to appropriate care.[5]

In this study, we aimed to examine the epidemiologic data of patients presenting to the emergency department of a tertiary care hospital with complaints of ENT diseases.

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METHODS

The study was carried out with the permission of the Bursa Uludag Univercity Hospital Scientific Research Evaluation and Ethics Committee (Date:12.04.2016 Decision No: 2016-7/2).We obtained an informed consent form from all patients for procedure. All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki. [3] Retrospective analysis was performed on patients who were hospitalized between April 15 and October 2015

This retrospective study was conducted in the emergency department of a medical faculty hospital serving as a tertiary healthcare institution to provide a comprehensive overview of ENT-related presentations. In line with the study's objectives, patients who were admitted to the emergency room between April 1, 2015, and October 1, 2015, were assessed and given an ICD (International Classification of Disease) classification by the attending physician. Evaluations were conducted for H92 (otalgia), H93 (tinnitus), H91 (sudden hearing loss), R42 (vertigo), H60 (otitis externa), and H60. 21 (malignant otitis externa), H66 (otitis media), H73 (bullous myringitis), T16 (foreign body in the ear), T17 (foreign body in the nose), T18 (foreign body in the mouth), K11 (sialolithiasis), S03 (mandibular dislocation), R04 (epistaxis), J03 (acute tonsillitis), J36 (peritonsillar abscess), J05 (epiglottitis), J39 (retropharyngeal abscess), S02 (maxillofacial trauma), T78 (hereditary angioedema), Z93 (tracheostomy), and J95 (tracheostomy tube exchange). Patients who had the aforementioned ICD codes entered as the initial diagnosis by the emergency physician but who, upon file examination, were given a different diagnosis and course of treatment for a different condition, were not included in the study. Among patients under the age of 18, only patients with a diagnosis of maxillofacial fracture were included. Patients presenting with the same complaint on the same day were considered a single patient, and second visits were excluded from the study.

In this study, 63900 patients were screened, and 2425 patients were evaluated for ear, nose, and throat (ENT) emergencies and included in the study. Applications, protocol numbers, primary and referral applications, patient complaints upon admission to the emergency room, ENT or plastic and reconstructive surgery (PRC) consultation status, forensic case status, laboratory, X-ray, computed tomography (CT), magnetic resonance imaging (MRI), discharge status (discharge, hospitalization, refusal of treatment, leaving the emergency room without permission), and referrals to other healthcare facilities were all noted in the data form.

Statistical Analysis

Statistical Package for Social Sciences for Windows 22.0 (SPSS 22.0) was used to analyze the data. Descriptive statistics (frequency and percentage distribution) were used for statistical analysis. The results are presented as mean ± SD or frequency (percentage).

RESULTS

Within the scope of this study, 2425 patients were evaluated. 51.5% (n=1248) of the patients were female. The mean age was 35.27±15.6 years (0-88) (Table 1).

Table 1. Analysis of demographic data

Data	(Mean/Numbe of Patients (n)	Rate (%)
Age	35.27±15.6	
Gender		
Male	1177	48.5
Female	1248	51.5
Application Form		
Outpatient application	2350	98.1
Referral from another institution	75	1.9
Pre-Existing Disease Status*		
No	2368	97.6
Yes	57	2.4
Investigation		
No Examination	1795	74
Computerized Tomography	322	13.3
X-ray	155	6.4
Laboratory	153	6.3
Magnetic Resonance Imaging	61	2.5
Diagnosis		
Acute tonsillitis	1458	60.1
Vertigo	610	25.2
Maxillofacial trauma	182	7.5
Foreign body	86	3.5
Otitis externa	34	1.4
Peritonsillar abscess	10	0.4
Hereditary angioedema	6	0.2
Sudden hearing loss	6	0.2
Epistaxis	3	0.1
Tracheostomy tube exchange	2	0.1
Tracheostomy care	2	0.1
Tinnitus	2	0.1
Parotitis	2	0.1
Retropharyngeal abscess	1	0.0
Malignant otitis externa	1	0.0
Forensic Case		
No	2341	96.5
Yes	84	3.5
Consultation		
Ear Nose Throat	108	4.5
Plastic and Reconstructive Surgery	88	3.6
Conclusion		
Discharged	2364	97.5
Hospitalization	53	2.2
Treatment refusal	3	0.1
Leaving the emergency room without permission	4	0.2
Referral to another institution	1	0.0

*Previously known ear, nose and throat disease status

The highest number of patient admissions was in the 21-30 age range (38.4%). The distribution of admissions according to the age range is shown in Figure 1.

A total of 98.1% of patients (n=2380) were admitted to the emergency department as outpatients. It was observed

that 2.4% (n=57) of the applicants had a known ENT disease. The most requested test was CT with a rate of 13.3% (n=322). The predominant diagnoses identified were acute tonsillopharyngitis, accounting for 60.1% (n-1458) of cases, followed by vertigo at 25.1% (n=610), highligting the prevalence of these conditions in the emergency setting. A total of 3.5% (n=84) of patients were evaluated as forensic cases. A total of 4.5% (n=108) of the patients were referred to the ENT clinic, and 3.6% to the PRC clinic (n=88). The discharge rate was 97.5% (n=2364) (Table 1). Of the 53 inpatients, 12 (22.6%) were hospitalized in the ENT clinic. Among these patients were those with peritonsillar abscess (n=5), malignant otitis externa (n=1), tracheal stenosis (n=1), and vestibular neuritis (n=5). In our study, the rate of cranial MRI findings in patients presenting with dizziness was 2.5%. Four patients were found to have had ischemic stroke and were admitted to the neurology clinic.

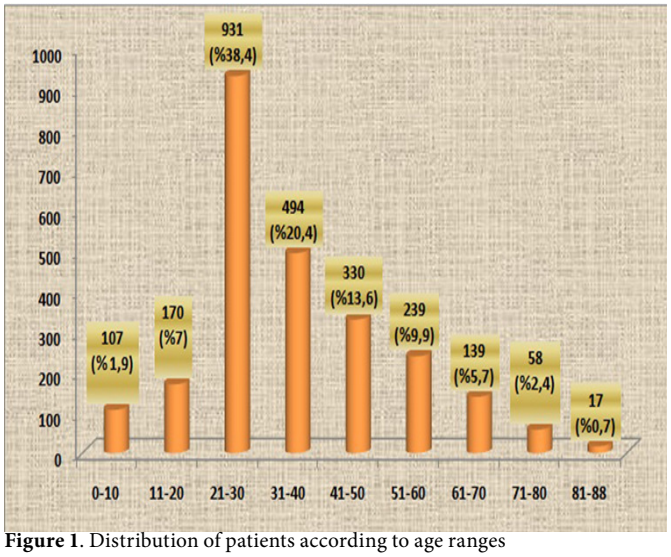

Figure 1. Distribution of patients according to age ranges

DISCUSSION

While the number of home care patients, the widespread use of home ventilators, the extension of the average human life expectancy, and the rise in the number of immunosuppressed patients as a result of medical advances have increased the frequency of emergency department visits of non-traumatic ENT patients, the incidence of traffic and occupational accidents, along with disasters, have significantly contributed to an increase in trauma-related ENT emergencies. In this study, we conducted a detailed analysis of the demographic data of patients who presented with ENT in the emergency department.

In our study, 51.5% of the patients were female. When we look at the gender distribution in similar studies in the literature, Prestes et al. reported that 52% of the patients were female6, Symvoulakis et al.[7] reported that 51% were female, Lammens et al. reported that 57% were male and Yojana et al.[8] reported that 70% were male.Yojana et al.[9] evaluated that the 2.5-fold increase in the male rate in the study conducted in India can be explained by the cultural and social taboos of the country. The reason for this is that men have a higher working rate and therefore encounter traffic accidents more frequently, while women live a life limited to the home.[9] As can be seen, gender distribution may vary according to regions and living conditions.

The age group of 21 to 30 years accounted for the largest percentage of admissions (38.4%) based on patient distribution by age range.

According to previous studies, the age range with the greatest number of applications was between 20 and 40 years (37%) according to Prestes et al.[6] and 15 to 34 years (Symvoulakis et al.[7] Similar to other studies, we attributed the high rate of admission in patients aged 20-40 years to the fact that people in this age range are more active in daily life.

When we examined the distribution of diagnoses in patients, we found that tonsillopharyngitis was the most common (60.1%). In the study by Prestes et al. this rate was 53.6% and similarly constituted the first rank.[6] The rate of tonsillopharyngitis was 36% in the study of Furtado et al.[10] consisting of 26584 individuals.In the study by Symvoulakis et al.[7] this rate was 26.7% and ranked first. It was reported as 4.9% in the study by Lammens et al.[8] In our study, the second most common diagnosis was vertigo (25.1%). In the study by Prestes et al.[6], no distinction was made between vertigo and dizziness, and the rate of vertigo was 3.93%; in a study by Symvoulakis et al.[7] this rate was found to be 3.5% for dizziness and 3.3% for vertigo. In a study including thirty thousand patients, the prevalence of vertigo was found to be around 17% and increased to 39% over the age of eighty.[11] One of the limitations of our study was that patients presented with complaints of dizziness in conditions such as motion sickness and dizziness; therefore, dizziness could not be differentiated, and all patients were evaluated as vertigo.

In our study, the rate of presentation to the emergency department due to maxillofacial trauma was 7.5%. This rate was found to be 6% in terms of nasal fracture secondary to trauma in a study conducted in Belgium.[8] In a study by Symvoulakis et al.[7] ear, nose and face traumas were found to be 5.4%.Similarly, the rate of maxillofacial trauma was found to be 7.9% in the study by Furtado et al.[10] As a different rate, the rate of maxillofacial trauma was found to be 84% in the study by Yojana et al.[9] The reason for this high rate may be related to the fact that only trauma cases were evaluated in the center where the study was conducted.

In our study, 3.5% of patients admitted to the emergency department had a foreign body in the ear, nose, or oropharyngeal region. In the study by Symvoulakis et al.,[7] the rate of foreign bodies was similar to that in our study (3.5%. In the study by Prestes et al.,[6] foreign bodies in the ear and nose were evaluated, and both had a rate of 0.56%. Yojana et al.[9] found this rate to be 5.8% in their study. In the study by Furtado et al.[10] the rate was 16.7%. When our study is evaluated proportionally with other studies, there are similar results in general.

An increasing demand for emergency rooms was suggested in a 2005 study by Rivero et al. when the frequency of visits to the emergency room was assessed. The most common causes of ENT emergencies were evaluated as nasal trauma, epistaxis, and otitis externa.[11]

In our study, the rate of patients diagnosed with external otitis was 1.4%. This rate was 2.8% in the study by Lammens et al.[8] Patients in the Yojana et al.[9] trial had an evaluation of ear discomfort with a rate of 0.9%, without making a distinction between otitis media and external otitis. These patients had otitis externa or acute otitis media of different etiologies. In a study by Prestes et al.[6] the rate of acute external otitis was 5.8%. In the study by Symvoulakis et al.[7] this rate was found to be 6%. The diagnosis of external otitis mediastinalis in patients admitted to our hospital's emergency department was comparatively lower than that in other studies. This may be related to the fact that there is no sea in the region where the study was conducted, pool facilities are limited, and the frequency of external otitis characterized as pool otitis is low.

In our study, uvular edema and angioedema were observed at rates of 0.3% and 0.2%, respectively, and uveal edema and angioedema were assessed together in the Symvoulakis et al.[7] study rather than separately, and a rate of 0.4% was observed. In a study of 1296 patients by Lammens et al.[8] the rate of angioedema was reported to be 0.8%.

In our study, patients presenting with isolated sudden hearing loss had a rate of 0.2%. Lammens et al.[8] reported the rate of patients presenting with hearing loss as 0.6% in their study. In the study by Symvoulakis et al.[7] the rate was found to be 0.4%. The rates observed in these results were similar.

In the present study, the rate of isolated epistaxis was 0.1%. In a study by Lammens et al.[8] the rate of patients admitted due to isolated epistaxis was reported to be 0.5%. The rate of isolated epistaxis was 12.98% in the study by Furtado et al.10 In a study by Symvoulakis et al.[7] this rate was 3.4%. In a study by Prestes et al.[6] the rate of epistaxis was 4.9%. In a study by Yojana et al.[9] the rate of isolated epistaxis was 0.7%. While the results of our study and the Yojana et al.[9] study were similar, the other studies showed rates that were almost ten times higher. These rates were comparatively lower in the present study. This may be due to the fact that the physician entered diagnoses such as anticoagulant poisoning if the bleeding was due to warfarin overdose or hypertension if the bleeding was due to high blood pressure instead of epistaxis code as ICD diagnosis.

In our study, the admission rate due to tracheostomy and tracheostomy cannula exchange was 0.1%. However, studies conducted in Spain, Belgium, Brazil, Greece, Brazil, Greece, and India have shown that there were no admissions to the emergency department due to tracheostomy or tracheostomy cannula exchange.[6-11] This could mean that enhanced home care services in the research locations resolved planned and elective issues such as cannula exchange and tracheostomy care. We anticipate that this will solve the problems experienced during the transportation process of patients followed up with home mechanical ventilators to the hospital.

In our study, the proportion of patients with isolated tinnitus was 0.1%. This rate was 1.2% in the study by Prestes et al.[6] Symvoulakis et al.[7] evaluated tinnitus and decreased hearing, together with a rate of 1.8%. In a study by Lammens et al.[8] the rate of patients presenting with tinnitus was 0.7%. In our study, the rate of diagnosis of parotitis was 0.1%. In the study by Yojana et al.[9] the rate of parotitis was 5.1%.

According to our analysis, situations requiring emergency intervention were assessed in the emergency department for 12.7% of patients associated with the ENT clinic. Similarly, Prestes et al.[6] evaluated 9.27% and Timsit et al.[12] evaluated 10% of patients admitted to the emergency department as emergency cases.

In our study, we observed that the number of outpatient applications related to ENT clinics (98.1%) was quite high in an institution serving as a tertiary health institution. It was observed that 95.5% of the patients were not asked for ENT consultation, and 97% were discharged with an outpatient prescription. Considering the results of our study, we think that the diagnosis and treatment of these patients can be organized especially in primary healthcare institutions.

CONCLUSION

The results of this study indicate that most ENT emergencies seen in the emergency department may be managed as outpatient cases, which presents a significant opportunity for improving primary care pathways. Ensuring that only cases requiring immediate, specialized interventions obtain tertiary care will greatly expedite emergency care by formalizing a more stringent triage procedure supported by evidence-based protocols. Furthermore, the observed high discharge rates indicate the viability of this technique, which could have advantages, such as more efficient use of healthcare resources and less traffic in emergency rooms. It is essential to make more investments in the education and training of primary care physicians in order to provide them with the necessary skills to treat common ENT diseases. This calculated reorientation, underpinned by strong epidemiological insights, could improve the quality of treatment given, guarantee prudent use of emergency medical resources, and eventually promote a more sustainable healthcare environment.

Limitations

Our study has several limitations. First, the experience of only one institution was included in our study, which was based on retrospective data. Outcomes may change in areas with distinct hospital characteristics and demographics.

It was not possible to ascertain patients' subsequent follow-up after being referred to an ENT physician. A prospective study design will allow the monitoring of this patient population.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study was carried out with the permission of the Bursa Uludag Univercity Hospital Scientific Research Evaluation and Ethics Committee (Date:12.04.2016 Decision No: 2016-7/2).

Informed Consent
All patients signed and free and informed consent form.

Referee Evaluation Process
Externally peer-reviewed.

Conflict of Interest Statement
The authors have no conflicts of interest to declare.

Financial Disclosure
The authors declared that this study has received no financial support.

Author Contributions
All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

REFERENCES

1. Stoner MJ, Dulaurier M. Pediatric ENT emergencies. *Emerg Med Clin North Am*. 2013; 31: 795-808.
2. Awad AH, ElTaher M. ENT Foreign bodies: An experience. *Int Arch Otorhinolaryngo*l. 2018; 22: 146-151.
3. Ibekwe UM. Otorhinolaryngological Emergencies in a tertiary hospital in port harcourt. *Niger J Clin Pract*. 2017; 20: 606-609.
4. Cevik C, Tekir O. Evaluation of emergency department applications in terms of diagnosis codes, triage and sociodemographic aspects. *Balıkesir Journal of Health Sciences*. 2014; 3: 102-107.
5. Woods RS, Keane E, Timon CV, Hone S. Prospective audit of a dedicated ear, nose and throat emergency department and 24-year comparison. *Ir J Med Sci*. 2017; 186(1): 247-254.
6. Prestes L, Hamerschmidt R, Tenorio S, Moreira AT, Tambara E. Epidemiologic profile of an otolaryngologic emergency service. *Int Arch Otorhinolaryngo*l. 2014; 18(4): 380-382.
7. Symvoulakis EK, Klinis S, Alegakis A, Kyrmizakis DE, Drivas EI, Rachiotis G, et al. Epidemiologic profile of otorhinolaryngological, head and neck disorders in a tertiary hospital unit in Greece: a challenge for general practitioners? *BMC Ear Nose Throat Disord*. 2006; 6(12): 1-7.
8. Lammens F, Lemkens N, Laureyns G, Lemmens W, Van Camp L, Lemkens P. Epidemiology of ENT emergencies. *B-ENT*. 2014; 10(2): 87-92.
9. Yojana S, Mehta K, Girish M. Epidemiological profile of otorhinolaryngological emergencies at a medical college, in rural area of gujarat. *Indian J Otolaryngol Head Neck Surg*. 2012; 64(3): 218-224.
10. Furtado PL, Nakanishi M, Rezende GL, Granjeiro RC, de Oliveira TS. Clinic-epidemiological analysis of an otorhinolaryngology emergency unit care in a tertiary hospital. *Braz J Otorhinolaryngol*. 2011; 77(4): 426-431.
11. Pino Rivero V, Trinidad Ruiz G, González Palomino A, Pardo Romero G, Pantoja Hernández CG, Marcos García M, et al. Consideraciones sobre las urgencias ORL. Análisis de 30,000 pacientes atendidos en 10 años [Considerations about ENT emergencies. Analysis of 30000 patients assisted in 10 years]. *Acta Otorrinolaringol Esp*. 2005; 56(5): 198-201.
12. Timsit CA, Bouchene K, Olfatpour B, Herman P, Tran Ba Huy P. Etude épidémiologique et clinique portant sur 20 563 patients accueillis à la grande garde d'urgences ORL adultes de Paris Ile-de-France [Epidemiology and clinical findings in 20,563 patients attending the Lariboisière Hospital ENT Adult Emergency Clinic]. *Ann Otolaryngol Chir Cervicofac*. 2001; 118(4): 215-224.